WHAT IS CLAIMED IS:

1. A method of displaying an image with a display device, the method comprising:

receiving image data for the image;

generating a first sub-frame and a second sub-frame based on combinations of pixel values from the image data; and

alternating between displaying the first sub-frame in a first position and displaying the second sub-frame in a second position spatially offset from the first position.

2. The method of claim 1, and further comprising:

generating a third sub-frame and a fourth sub-frame based on combinations of pixel values from the image data; and

wherein alternating between displaying the first sub-frame and displaying the second sub-frame further includes alternating between displaying the first sub-frame in the first position, displaying the second sub-frame in the second position, displaying the third sub-frame in a third position spatially offset from the first position and the second position, and displaying the fourth sub-frame in a fourth position spatially offset from the first position, the second position, and the third position

3. The method of claim 1, wherein the first and the second sub-frames each include a plurality of pixels, the method further comprising:

assigning a value to each pixel in the first and the second sub-frames based on a weighted sum of a plurality of pixel values from the image data.

4. The method of claim 1, wherein the first and the second sub-frames each include a plurality of pixels, the method further comprising:

assigning a value to each pixel in the first and the second sub-frames based on a weighted sum of four pixel values from the image data.

5. The method of claim 1, wherein the image data includes a plurality of blocks of four pixels, the first and the second sub-frames each including a plurality of pixels, each pixel in the first and the second sub-frames corresponding to one of the blocks.

6. The method of claim 5, and further comprising:

assigning a value to each pixel in the first and the second sub-frames based on a weighted sum of the pixel values of the four pixels in the block corresponding to the pixel in the sub-frame.

7. The method of claim 6, wherein the weighted sum comprises a sum of multiplications of three of the pixel values by a zero value and multiplication of one of the pixel values by a non-zero value.

8. The method of claim 7, wherein the non-zero value is one.

9. The method of claim 6, wherein the weighted sum comprises a sum of multiplications of three of the pixel values by at least one non-zero value and multiplication of one of the pixel values by a non-zero value.

10. The method of claim 6, wherein the weighted sum comprises a sum of multiplications of at least two of the pixel values by at least one non-zero value.

11. The method of claim 1, wherein the combinations are linear combinations.

12. The method of claim 1, wherein the combinations are non-linear combinations.

13. A system for displaying an image, the system comprising:

a buffer configured to receive image data for the image, the image data including a plurality of blocks of pixels;

an image processing unit configured to define first and second sub-frames, the first and the second sub-frames each including a plurality of pixels, each pixel in the first and the second sub-frames corresponding to one of the blocks, and wherein the image processing unit is configured to assign a value to each pixel in the first and the second sub-frames based on a value of at least one pixel in a corresponding block multiplied by at least one weight value; and

a display device adapted to alternately display the first sub-frame in a first position and the second sub-frame in a second position spatially offset from the first position.

14. The system of claim 13, wherein each block of pixels includes a 2x2 array of four pixels.

15. The system of claim 14, wherein the image processing unit is configured to assign a value to each pixel in the first and the second sub-frames based on values of the four pixels in a corresponding block multiplied by four respective weight values.

16. The system of claim 15, wherein the weight values include three zero values and one non-zero value.

17. The system of claim 15, wherein the weight values include at least two non-zero values.

18. A system for generating sub-frames for display at spatially offset positions to generate the appearance of a higher resolution image, the system comprising:

means for receiving a first image;

means for identifying a plurality of blocks of pixels in the first image; and

means for generating a plurality of sub-frames based on combinations of the pixels in each identified block of pixels.

19. The system of claim 18, wherein the combinations of the pixels in each identified block comprise weighted sums of the pixels in each identified block.

20. The system of claim 19, wherein each block comprises a 2x2 array of four pixels.

21. The system of claim 18, wherein the combinations are linear combinations.

22. The system of claim 18, wherein the combinations are non-linear combinations.

23. A computer-readable medium having computer-executable instructions for performing a method of generating sub-frames for display at spatially offset positions to generate the appearance of a higher resolution image, comprising:

receiving a first high resolution image;

identifying a plurality of sets of pixels in the first high resolution image; and

generating a plurality of sub-frames based on weighted sums of the pixels in each identified set of pixels.

24. The computer-readable medium of claim 23, wherein each set of pixels comprises four neighboring pixels.